UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/089,092	08/07/2002	Stefan Cramer	204-032	4461

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EXAMINER
LE, NANCY V

ART UNIT	PAPER NUMBER
2858	

DATE MAILED: 11/19/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/089,092	CRAMER ET AL.
	Examiner	**Art Unit**
	Jeff Natalini	2858

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _07 March 2002 and 12 April 2002_.

2a)☐ This action is **FINAL.**   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _17-32_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _17-32_ is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _07 August 2002_ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☒ All   b)☐ Some * c)☐ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
    Paper No(s)/Mail Date _4/12/02_.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Drawings

New corrected drawings in compliance with 37 CFR 1.121(d) are required in this

application because the drawling still have German words as labels which have

handwritten English translations next to each label, these German labels need to be

deleted and replaced with typed English labels. Applicant is advised to employ the

services of a competent patent draftsperson outside the Office, as the U.S. Patent and

Trademark Office no longer prepares new drawings. The corrected drawings are

required in reply to the Office action to avoid abandonment of the application. The

requirement for corrected drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show

every feature of the invention specified in the claims. Therefore, the predetermined

table containing suitable frequencies for determining the variation of frequencies (in

claim 19) and how it is implemented in the fill level sensor must be shown or the

feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in

reply to the Office action to avoid abandonment of the application. Any amended

replacement drawing sheet should include all of the figures appearing on the immediate

prior version of the sheet, even if only one figure is being amended. The figure or figure

number of an amended drawing should not be labeled as "amended." If a drawing figure

is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for

consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. The replacement sheet(s) should be labeled "Replacement

Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of

the drawing figures. If the changes are not accepted by the examiner, the applicant will

be notified and informed of any required corrective action in the next Office action. The

objection to the drawings will not be held in abeyance.

Specification

The specification is objected to because of the following informalities:

- On pg 6 line 15-16, a reference is made to claim numbers, please delete

  as there should be no references made to specific claim numbers in the

  specification.

- In figure 3 the domain (A) is shown, on pg 11 line 9, there is a reference to

  the range (A) in the same figure, please correct accordingly to provide

  consistency.

Appropriate correction is required.

Claim Objections

Claims 17, 18, 24- 27, 29, 31, and 32 are objected to because of the following

informalities:

In regard to claim 17, after the phase "one of the following conditions apply:" on pg 5, it is indefinite as to which two conditions applicant is referring to. When separating the two conditions please use "or" (for clarity) as the phase "one of the following conditions" is an exclusive statement. For examinations purposes the two conditions will be the time expanded delay remaining changed or unchanged.

In regard to claim 18, there is no antecedent basis for "said varying step" (stated twice in this claim), there must be a title giving a certain step the name "varying step" in order to use the phase "said varying step". For examination purposes it will be assumed the varying step is the step consisting of "varying said scanning frequency and said pulse repetition frequency..."

In regard to claim 24, there is no antecedent basis for "the difference" and "the maximum and minimum deviation" (these are both stated twice on lines 2 and 3 of the claim), will be examined as though each of these statements were changed to "a difference" and "a maximum and minimum deviation".

In regard to claim 25, there is no antecedent basis for "the distance" stated in line 2 and 3 of the claim, it will be examined as though it were changed to "a difference".

In regard to claim 26, there is no antecedent basis for "the variance step" (the last three words of this claim), for examination purposes it will be assumed this variance step is "varying said scanning frequency and said pulse repetition frequency" also after the phase "applying one of the following conditions", it is indefinite as to which two conditions applicant is referring to. When separating the two conditions please use "or" (for clarity) as the phase "one of the following conditions" is an exclusive statement. For

examinations purposes the two conditions will be the time expanded delay remaining

changed or unchanged.

In regard to claim 27, "said multiple executing step" lacks antecedent basis and it

is unclear as to which step is being referred to.

In regard to claim 29, "said pulse repetition frequency" lacks antecedent basis, it

will be examined as though it was stated as "said variable pulse repetition frequency".

In regard to claim 31, "said scanning frequency" lacks antecedent basis, this will

be examined as though it was introduced in this claim, for example as though it were

stated "controlled oscillator which oscillates at a scanning frequency".

In regard to claim 32, "said pulse repetition frequency" and "said scanning

frequency" lack antecedent basis. For examination purposes "said pulse repetition

frequency" will be assumed to be "said variable pulse repetition frequency" and the

scanning frequency if introduced in claim 31 as stated above will contain antecedent

basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

Claims 17-23 and 25-32 are rejected under 35 U.S.C. 103(a) as being

unpatentable over McEwan (5609059) in view of Okubo et al. (5973636).

In regard to claims 17, 26, and 28 McEwan discloses a method/apparatus

comprising: a trigger generator for generating a transmission pulse at a pulse repetition

frequency (fig 4 (46 or 55)) with a control signal (from fig 4 (40 or 53)) and a scanning

trigger signal (fig 4 (78,77));

coupling said transmission pulse into a waveguide (col 3 line 40-42);

scanning generator for generating (fig 4 (78,77)) a reflected signal which is

reflected back by a reflector in contact with the waveguide (col 3 line 30-38) , for time-

expanded display as a reflection profile with scanning pulses repeated at a scanning

frequency (col 4 line 35-38, fig 4 (72-display));

scanning unit (fig 4 (45,68,70,72,79)) that continuously obtains measured values,

from said reflection profiles (col 9 line 45-48), that contain the distance of the reflector to

a process terminal (col 3 line 33-38);

in providing a interference free signal (col 7 line 33-42) if the reflection profile

changes over time, the time change is known and taken into account for evaluation (col

4 line 25-38).

McEwan lacks a control unit using a specific algorithm for deciding the usability

of said measured values, which from these values and the amount of interference

calculates whether the reflection profile is free of interference wherein: the scanning

frequency and pulse repetition frequency are varied and an amount of interference is

determined from at least one measurement of the reflected profiles.

Okubo et al. discloses a control unit ((fig 23 (108))) with an algorithm and can

calculate whether the reflection profile is free of interference (col 13 line 14-19); where

the transmitted frequency is varied (col 4 line 53-59) (since the pulse repetition

frequency and scanning frequency both have to do with signal transmission and the

McEwan reference teaches using both, it would be known in the art that both

frequencies could be varied) and an amount of interference is determined from a

measurement of the reflected profile (col 13 line 25 –31).

It would have been obvious to one with ordinary skill in the art at the time the

invention was made for McEwan to use an algorithm to determine if the profile is free of

interference by varying the scanning frequency and pulse repetition frequency and

measuring the amount of interference as taught by Okubo et al. in order to obtain a

signal with less interference for increased accuracy (col 4 line 55-59).

In regard to claims 18, 21, 27, and 29, McEwan lacks wherein the algorithm

comprises the following steps: varying said scanning frequency and said pulse

repetition frequency if the amount of interference exceeds a predetermined threshold,

wherein the varying is done with a voltage controlled oscillator; determining and

assessing the amount of interference; repeating the varying of the frequencies and

subsequent determining until the amount of interference is below said predetermined

threshold.

Okubo et al. discloses wherein the algorithm comprises the following steps:

varying said scanning frequency and said pulse repetition frequency (col 4 line 53-59)

using a voltage controlled oscillator (fig 23 (114), col 13 line 32-34) if the amount of

interference exceeds a predetermined threshold (col 13 line 14-19); determining and

assessing the amount of interference (col 13 line 25-31); and this process will be

performed multiple times if it is found that there is still interference present (col 14 line

18-20)

It would have been obvious to one with ordinary skill in the art at the time the

invention was made for McEwan to have an algorithm that varies the scanning

frequency and the pulse repetition frequency (with a voltage controlled oscillator) if the

amount of interference exceeds a predetermined threshold then determining and

assessing the amount of interference and repeating these steps until the amount of

interference is below said predetermined threshold as taught by Okubo et al. in order to

obtain a signal with less interference for increased accuracy (col 4 line 55-59).

In regard to claim 19, McEwan discloses a predetermined table which contains

suitable frequencies for determining the variation in said scanning frequency and said

pulse repetition frequency wherein the access to the table in linear (col 8 line 8-17).

In regard to claim 20, McEwan discloses selecting the scanning frequency and

pulse repetition frequency from a frequency range for the purpose of changing the

scanning frequency (col 9 line 37-47) and pulse repetition frequency (col 7 line 27-37).

In regard to claims 22 and 30, McEwan discloses providing a delay circuit

supplied with a reference signal at pulse repetition frequency and generating an output

signal (col 4 line 25-30); determining the delay in said output signal by a predetermined

set-point delay value, with which the controllable delay circuit is controlled (col 4 line 34-

38); and obtaining a scanning trigger signal from a transmission trigger signal by means of the controllable delay circuit (fig 4 (77, 53); col 9 line 53-65).

In regard to claim 23, McEwan lacks wherein the amount of interference is obtained by a comparison of the pulse associated with said reflected profiles with a predetermined reference pulse.

Okubo et al. discloses wherein the amount of interference is obtained by a comparison of the pulse associated with said reflected profiles with a predetermined reference pulse (col 13 line 25-31).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for McEwan to determine the amount of interference by a comparison of the reflected pulse with a reference pulse as taught by Okubo et al. in order to accurately detect any interference.

In regard to claim 25, 31, and 32, McEwan discloses wherein a regulator is supplied (fig 4 (50)), and another oscillator is included in the trigger generator forming an oscillator bank (fig 4 (78 and 40 now comprise the trigger generator)), wherein the scanning frequency upon a variation in the pulse repetition frequency is adapted such that the difference between the scanning frequency and the pulse repetition frequency does not exceed a predetermined range or is constant (col 9 line 53-65).

Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over McEwan (5609059) in view of Okubo et al. (5973636) as applied to claim 17 above, and further in view of Lacey et al. (5793480).

McEwan and Okubo et al. lack wherein the amount of interference is obtained by a difference between the maximum and minimum deviation from a predetermined value.

Lacey et al. teaches wherein the amount of interference is obtained by a difference between the maximum and minimum deviation from a predetermined value (col 1 line 42-51).

It would have been obvious to one with ordinary skill in the art at the time the invention was made for McEwan and Okubo et al. to determine interference by comparison of a known value to the maximum and minimum deviation as taught by Lacey et al. in order to determine the air bearing thickness of the signal (col 1 line 50-51).

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Perdue et al. (5841666) is the US Patent for cited patent EP 0780665, that contains a pulse generator and records the reflected pulses to measure the fill level. Gilger (5977926) teaches to change the frequency of one channel if it is receiving interference from another signal, so to lower the interference and avoid crosstalk. Benveniste (5787352) teaches interference is decreased when there is a larger frequency spectrum separation between channels.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeff Natalini whose telephone number is 571-272-2266. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, N. Le can be reached on 571-272-2233. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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